



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/628,473	07/31/2000	Donald M. Gray	14531.73	5542

7590 04/22/2004

RICK D. NYDEGGER
Workman Nydegger & Seeley
1000 Eagle Gate Tower
60 E South Temple
Salt Lake City, UT 84111

EXAMINER

PARK, ILWOO

ART UNIT	PAPER NUMBER
----------	--------------

2182

DATE MAILED: 04/22/2004

7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/628,473

Applicant(s)

GRAY ET AL

Examiner

Ilwoo Park

Art Unit

2182

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 January 2004.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-3, 5-26 and 37-44 is/are allowed.
- 6) ☒ Claim(s) 27-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1, 8, and 37 are amended and claim 4 is canceled. Parvin et al., Beck et al., and Witkowski et al. were cited in the last office action. Claims 1-3 and 5-44 are presented for examination. The following rejections now apply.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 27 and 36, are rejected under 35 U.S.C. 102(b) as being anticipated by Beck et al., US patent No. 5,826,101.

As to claims 27 and 36, Beck et al teach a system including a main memory [e.g., RAM 16] storing data for one or more devices [COM PORTs 50-55], a method for arbitrating [col. 8, lines 23-26] data requests from the one or more devices, the method comprising the acts of:

creating an arbitration mechanism [col. 32, lines 17-19] at a direct memory access (DMA) engine;

selecting [col. 32, lines 25-27; fig. 12a] eligible devices [communication ports in conjunction with channels 2, 4, and 5 selected] from the one or more devices [communication ports 50-55] using the arbitration mechanism; and

Art Unit: 2182

allowing the eligible devices to make [col. 32, lines 25-27; fig. 12a] data requests to the DMA engine for one channel of each of the eligible devices.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 28-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beck et al., US patent No. 5,826,101 in view of Witkowski et al., US patent No. 6,098,110.

As to claim 28, Witkowski et al teach an arbitration mechanism including a counter [col. 17, lines 36-53; col. 27, line 61-col. 28, line 22] is used to select eligible devices from one or more devices [ports 104, 110 and PCB 406] in a round-robin/rotating priority scheme.

Therefore, it would have been obvious to one of ordinary skill in the art at the invention was made to include the counter of Witkowski et al would increase flexibility in arbitrating data requests in a round-robin/rotating priority scheme of Beck et al's arbitration mechanism.

6. As to claim 29, Witkowski et al teach incrementing the counter after all the eligible devices have had an opportunity to make data requests [col. 25, lines 23-45].

7. As to claim 30, Witkowski et al teach performing a logic operation using device identifiers and the arbitration mechanism for each of the one or more devices, wherein

Art Unit: 2182

each of the one or more devices is an eligible device when the logic operation is true [fig. 5B; col. 25, lines 30-45].

8. As to claim 31, Witkowski et al teach allowing all of the devices to make data requests within a programmable time period [col. 17, lines 11-27; col. 24, lines 7-10].

9. As to claim 32, Witkowski et al teach the programmable time period is defined by the arbitration mechanism [col. 17, lines 11-27; col. 24, lines 7-10].

10. As to claim 33, Beck et al teach accessing data to a data reservoir [col. 29, lines 10-15] of the DMA engine for data according to the data requests.

11. As to claim 34, Beck et al teach sending data to a data reservoir [col. 29, lines 10-15] of the DMA engine for data in accordance with the data requests.

12. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Beck et al., US patent No. 5,826,101 in view of Parvin et al., US patent No. 6,167,465.

As to claim 35, Beck et al don't explicitly disclose maintaining a data reservoir by accessing a main memory according as determined by a memory interface. Parvin et al teach maintaining [col. 16, lines 47-54] a data reservoir [FIFOs 306] by accessing a main memory according as determined by a memory interface. Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Beck et al and Parvin et al because they both teach a DMA having a data reservoir for data access with a main memory and the Parvin et al's teaching of maintaining a data reservoir by accessing a main memory according as determined by a memory interface would increase serviceability for real-time applications of Beck et al [Beck et al: col. 2, lines 38-43].

Allowable Subject Matter

13. Claims 1-3, 5-26, and 37-44 are allowed.

Response to Arguments

14. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., which devices are eligible to make a DMA request) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

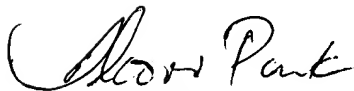
15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 2182

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ilwoo Park whose telephone number is (703) 308-7811. The examiner can normally be reached on Monday through Friday from 9:00 AM to 5:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey A Gaffin can be reached on (703) 308-3301. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Hand-delivered responses should be brought to US Patent and Trademark Office, 2011 South Clark Place, Customer Window, Crystal Plaza Two, Lobby, Room 1B03, Arlington, VA 22202.



Ilwoo Park

Primary Examiner

April 18, 2004